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PERGAMON

Behaviour Research and Therapy 39 (2001) 843–852

BEHAVIOUR RESEARCH AND THERAPY

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Shorter communication

Thought–action fusion and anxiety disorders symptoms in normal adolescents

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Accepted 4 July 2000

Abstract

The present study examined thought–action fusion (TAF) in a large sample of normal adolescents (n=427). Participants completed the Thought–Action Fusion Questionnaire for Adolescents (TAFQ–A) and scales measuring trait anxiety, symptoms of obsessive–compulsive disorder, other anxiety disorders, and depression. Results showed that the TAFQ–A is a reliable instrument assessing two dimensions of TAF, viz. Morality (i.e., the belief that unacceptable thoughts are morally equivalent to overt actions) and Likelihood (i.e., the belief that thinking of an unacceptable or disturbing situation will increase the probability that that situation actually occurs). Furthermore, TAF was not only associated with symptoms of OCD, but also with symptoms of other anxiety disorders and depression. However, when controlling for levels of trait anxiety, most connections between TAF and anxiety disorders symptoms disappeared. Symptoms of OCD and generalised anxiety remained significantly related to TAF. Altogether, the data are supportive of the notion that TAF is involved in a broad range of anxiety disorders and in particular OCD.

Keywords: Thought–action fusion; Obsessive–compulsive disorder; Anxiety disorders; Normal adolescents

1. Introduction

According to the cognitive theory of obsessive–compulsive disorder (OCD) (Rachman, 1993, 1997, 1998a; Salkovskis, 1985), obsessional problems may arise when individuals experience an inflated

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0005-7967/01/$ - see front matter
PII: S0005-7967(00)00077-2

sense of responsibility for their own thoughts. More specifically, a person who feels extremely responsible for his or her thoughts will experience more discomfort when an 'immoral' thought (e.g., sexual, violent, or blasphemous) intrudes consciousness than a person without such a strong sense of responsibility. In other words, individuals with an exaggerated feeling of responsibility are inclined to misinterpret their intrusions in a catastrophic way. Through these catastrophic misinterpretations, an intrusion may acquire obsessional qualities (e.g., tension, anxiety, and resistance).

Thought–action fusion (TAF) refers to a cognitive bias that may increase people's sense of responsibility for their intrusions and hence can be regarded as a vulnerability factor for the development of clinical obsessions (e.g., Rachman, 1997). Briefly, TAF consists of two components: (1) 'TAF–Morality' which pertains to the belief that unacceptable thoughts are morally equivalent to overt actions, and (2) 'TAF–Likelihood' which refers to the belief that thinking of an unacceptable or disturbing situation will increase the probability that that situation actually occurs. Factor analysis with adult subjects (see Shafran, Thordarson & Rachman, 1996) has suggested that there are two distinct types of TAF–Likelihood: TAF–Likelihood Self which refers to the likelihood for events happening to oneself and TAF–Likelihood Others which pertains to the likelihood for events happening to other people. There is some empirical support for the presumed role of TAF in the exacerbation of intrusive thoughts as seen in OCD. First of all, Rassin, Merckelbach, Muris and Spaan (1999) showed that TAF influences subjects' appraisal of the significance of intrusions. Subjects were led to believe that thinking about the word 'apple' could result in the administration of an electrical shock to another person. Results indicated that this experimentally induced TAF promoted intrusive thinking in that it resulted in a higher frequency of target thoughts (i.e., thoughts about the word 'apple'), more discomfort, and more resistance. Second, correlational data show a robust connection between TAF and OCD symptoms (Shafran et al., 1996; Rachman, Thordarson, Shafran & Woody, 1995). Furthermore, a study by Rassin, Muris, Schmidt and Merckelbach (2000a) indicated by means of structural equations modelling that TAF indeed should be considered as an antecedent of OCD symptoms. Third and finally, subjects with obsessional symptoms were found to display higher levels of TAF than subjects without such symptoms (Shafran et al., 1996).

Recently, Rassin, Diepstraten, Merckelbach and Muris (2000b) found evidence to suggest that TAF may not be specifically linked to OCD. In that study, OCD patients and patients with other anxiety disorders (e.g., panic disorder, post-traumatic stress disorder, and social phobia) were found to have similar TAF levels. Furthermore, in both groups of patients, TAF was not only significantly associated with OCD symptoms but also with general levels of psychopathology as indexed by the Symptoms Checklist (SCL–90; Derogatis, 1977). The present study further explored this issue. Its main purpose was to investigate whether TAF is either exclusively linked to OCD symptoms or connected to a wide range of anxiety disorders symptoms and even depression. Furthermore, it was examined whether the connections between TAF and OCD and other anxiety disorders symptoms are independent of the influence of trait anxiety. Note that trait anxiety is considered to be an important vulnerability factor for anxiety symptoms (e.g., Rachman, 1998b) and so it would be interesting to study whether the correlations between TAF and OCD and other anxiety disorders symptoms hold up when controlling for levels of trait anxiety. Thus, a large group of normal adolescents (n=427) completed a measure of TAF, the trait anxiety version of the State–Trait Anxiety Inventory for Children (STAIC; Spielberger, 1973), and questionnaires measuring symptoms of obsessive–compulsive disorder, other anxiety disorders, and depression. The current study relied on a child sample as previous studies have indicated that anxiety symp-

toms including symptoms of OCD are prevalent among children and adolescents (e.g., Spence, 1997; March, Leonard & Swedo, 1995). The study was the first to examine the role of TAF in OCD and other anxiety disorders symptoms in an adolescent population. Previous studies on adult samples have all relied on the TAF scale developed by Shafran et al. (1996). While this scale is reliable and possesses a clear-cut factor structure (with two factors: TAF–Morality and TAF–Likelihood), it contains questions that are not relevant for children and adolescents (e.g., some items refer to 'losing a job', 'being in a car accident'). Therefore, we decided to construct a new questionnaire for the use with young people. An additional purpose of the present study was to examine the psychometric properties of this TAF scale (i.e., the TAFQ–A; see below).

Taken together, the current study examined TAF in an adolescent sample. More specifically, the following issues were addressed: (1) the factor structure and reliability of the TAFQ–A; (2) the connections between TAF, on the one hand, and symptoms of OCD, anxiety disorders, and depression, on the other hand; and (3) the relationships between TAF and symptoms of OCD and anxiety disorders while controlling for levels of trait anxiety.

2. Method

2.1. Participants and procedure

Subjects were 427 adolescents from a regular secondary school in Meerssen, The Netherlands. The mean age of the adolescents was 14.2 years (SD=1.0; range: 13–16 years). Adolescents were asked to complete the set of questionnaires (see below) during regular classes. More than 95% of the adolescents agreed to participate. A teacher and a research assistant were always available to ensure independent and confidential responding and to provide assistance when necessary.

2.2. Questionnaires

The Thought–Action Fusion Questionnaire for Adolescents (TAFQ–A) was construed for the purpose of the present study. The TAFQ–A consists of 15 brief vignettes each followed by an item. Eight of the items refer to the fusion of thoughts and action in terms of Morality, seven items pertained to the fusion of thoughts and action in terms of Likelihood (four items were concerned with Likelihood Self and three items pertained to Likelihood Others; see Table 1). Each item had to be rated on a 4-point Likert scale with 1=not at all true, 2=somewhat true, 3=rather true, and 4=very true. TAFQ–A total, Morality, and Likelihood scores can be calculated by summing across relevant items.

The trait version of the STAIC contains 20 items that measure chronic symptoms of anxiety. The child is asked to rate the frequency with which (s)he experiences anxiety symptoms such as "I am scared", "I feel troubled", and "I get a funny feeling in my stomach" using 3-point scales: 1=almost never, 2=sometimes, and 3=often. A total trait anxiety score can be calculated by summing the ratings on all items.

The child version of the Leyton Obsessional Inventory (LOI–C; Berg, Whitaker, Davies, Flament & Rapoport, 1988) is a brief 20-item scale for measuring symptoms of OCD in children and adolescents aged 8 to 18 years. Examples of items are "Do you have to check things several times?", "Are you fussy about keeping your hands clean?", and "Do you move or talk in just a

Table 1
Factor structure of the Thought–Action Fusion Questionnaire for Adolescents (TAFQ–A)[a]

	Factor 1	Factor 2
Thought–action fusion Morality		
1 You are with a friend. Suddenly without any reason you think that your friend is a stupid person. Item: Having this thought is almost as bad as really saying to your friend that he is stupid.	0.57	0.20
3 You are alone in a church standing in front of a large statue of Jesus. Suddenly you have the thought of spitting on the statue. Item: Having this thought is almost as bad as really spitting on the statue.	0.66	0.21
5 You meet a classmate. Suddenly without any reason you think of a term of abuse for this person. Item: Having this thought is almost as bad as abusing this person.	0.71	0.15
7 You are sitting in the classroom. All your classmates are quietly working. Suddenly you have the thought of shouting at the top of your voice. Item: Having this thought is almost as bad as really shouting at the top of your voice in the silent class.	0.65	0.12
9 In a silent street, you meet a younger child. Suddenly without any reason you think of pushing the child down. Item: Having this thought is almost as bad as really pushing the child down.	0.76	0.24
11 You walk on the street and you meet an unfamiliar person. Suddenly you have the thought of making an obscene gesture to this person. Item: Having this thought is almost as bad as really making the obscene gesture to this person.	0.73	0.14
13 You have heard that the parents of one of your classmates are getting a divorce. Suddenly you have the thought of teasing this classmate with this information. Item: Having this thought is almost as bad as really teasing your classmate with this information.	0.71	0.30
15 You come across the purse of your mother. Suddenly you have the thought of stealing some money from the purse. Item: Having this thought is almost as bad as really stealing money from the purse.	0.71	0.28
Thought–action fusion Likelihood		
2 Suddenly without any reason you have the thought that you are dying. Item: Having this thought increases the risk that you really are going to die.	0.06	0.67
4 Suddenly without any reason you have the thought that your father is laid off and that there are financial problems at home. Item: Having this thought increases the risk that your father really will be laid off.	0.24	0.57
6 Suddenly without any reason you have the thought that you are hit by a car. Item: Having this thought increases the risk that you really will be hit by a car.	0.16	0.71
8 Suddenly without any reason you have the thought that you fall seriously ill. Item: Having this thought increases the risk that you really will fall seriously ill.	0.19	0.76
10 Suddenly without any reason you have the thought of your father being in a car accident. Item: Having this thought increases the risk that your father really will have a car accident	0.29	0.76
12 Suddenly without any reason you have the thought that your mother is dying. Item: Having this thought increases the risk that your mother really is going to die sometime soon.	0.22	0.82
14 Suddenly without any reason you have the thought that you have to stay down a class. Item: Having this thought increases the risk that you really will stay down a class.	0.30	0.59
Eigenvalue	4.8	2.6
% of variance	32.0	17.0

[a] Each TAFQ–A item is preceded by a brief vignette.

special way to avoid bad luck?". Items have to be scored on a 5-point scale with 0=never, 1=almost never, 2=sometimes, 3=often, and 4=always. A total LOI–C score was computed by summing scores on all items.

Research on the psychometric properties has indicated that the LOI–C is reliable in terms of internal consistency (Berg et al., 1988). Furthermore, Flament, Whitaker and Rapoport (1988) have found that the scale has acceptable sensitivity for identifying adolescents with OCD, although its specificity was rather poor (i.e., high false–positive rate).

The Spence Children's Anxiety Scale (Spence, 1998) is a self-report questionnaire for measuring DSM-defined anxiety disorders symptoms in children and adolescents. The scale contains 38 items that can be allocated to the following subscales: generalised anxiety (six items; e.g., "I worry that something bad will happen"), separation anxiety (six items; e.g., "I feel scared when I have to sleep on my own"), social phobia (six items; e.g., "I feel afraid that I will make a fool of myself in front of people"), panic and agoraphobia (nine items; e.g., "All of a sudden I feel really scared for no reason at all", "I am afraid of being in crowded places"), obsessive–compulsive disorder (six items; e.g., "I have to think of special thoughts to stop bad things from happening")[1], and physical-injury fears replacing specific phobias (five items; e.g., "I am scared of dogs"). SCAS items are rated on 4-point scales: never, sometimes, often, or always. These are scored 0, 1, 2, and 3, respectively. SCAS total and subscale scores are computed by summing across relevant items.

The SCAS is a reliable self-report questionnaire with satisfactory internal consistency and test-retest stability (Spence, 1998). Furthermore, several factor analytic studies have indicated that anxiety symptoms as indexed by the SCAS cluster into the anxiety disorders categories as listed in the DSM (Muris, Schmidt & Merckelbach, 2000; Spence, 1997) and that the scale differentiates between clinically anxious and non-clinical control children (Spence, 1998). Finally, SCAS scales generally correlate in a theoretically meaningful way with alternative measures of childhood anxiety (Muris et al., 2000; Spence, 1998).

The Children's Depression Inventory (CDI; Kovacs, 1981) is a commonly used self-report measure of depression symptoms in children and adolescents 7 to 17 years of age. The scale has 27 items dealing with sadness, self-blame, loss of appetite, insomnia, interpersonal relationships, and school adjustment. CDI items have to be scored on three-point scales with 0=not true, 1=somewhat true, or 2=very true. A total CDI score can be calculated by summing all item scores.

3. Results

3.1. Factor structure of the TAFQ–A

TAFQ–A items were subjected to exploratory factor analysis (principal components analysis with direct oblimin rotation). This was first done for the TAFQ–A data of boys and girls separately. However, as analyses essentially revealed the same pattern of results, only the findings for the total sample will be presented hereafter.

[1] SCAS obsessive–compulsive disorder correlated significantly stronger with the LOI–C [$r(427)=0.73$, $P<0.001$] than any of the other SCAS anxiety disorders [$rs(427)$ between 0.38 (physical-injury fears) and 0.64 (generalised anxiety), all $Ps<0.001$], a finding that supports the concurrent validity of this subscale.

Factor analysis yielded a two-factor solution that accounted for 49.0% of the variance (eigenvalues for the first 10 'factors' were 4.8, 2.9, 0.9, 0.9, 0.8, 0.8, 0.7, 0.6, 0.6, and 0.5). Table 1 presents the TAFQ–A items and their loadings on the two factors after rotation. As can be seen, Morality items clearly loaded on the first factor, whereas Likelihood items convincingly loaded on the second factor. None of the items had a substantial secondary loading. The TAFQ–A factors Morality and Likelihood were moderately intercorrelated: $r(427)=0.33$, $P<0.001$.

Because factor analysis of the adult version of the TAF scale has yielded a structure with three factors viz. TAF–Morality, TAF–Likelihood Self, and TAF Likelihood Others (see Shafran et al., 1996), the three-factor solution of the TAFQ–A was also inspected. Results showed that the three-factor solution was not satisfactory. The third factor was weak and almost all items still loaded most convincingly on the first two factors. Thus, there were no indications that the Likelihood factor splitted into two factors: Likelihood Self and Likelihood Others.

3.2. Reliability of the TAFQ–A

The internal consistency of the TAFQ–A scales was high: Cronbach's alphas were 0.84 for the total score, 0.85 for the Morality scale, and 0.81 for the Likelihood scale. Furthermore, no gender differences were found for the TAFQ–A: boys and girls displayed highly similar levels of TAF (Table 2).

Note in passing that most of the other questionnaires (i.e., STAIC, LOI–C, SCAS, and CDI) were also reliable. Only the SCAS physical injury fears subscale had a Cronbach's alpha that was insufficient: 0.58. Furthermore, in keeping with earlier studies, girls had higher levels of

Table 2
General statistics (mean scores, Cronbach's alphas, gender differences) of the thought–action fusion questionnaire and the other measures used in the present study[a]

	Total group (n=427)	Boys (n=197)	Girls (n=230)	α
Thought–action fusion				
Total score	22.2 (6.4)	22.5 (6.5)$_a$	21.9 (6.3)$_a$	0.84
Morality	13.4 (4.9)	13.7 (5.1)$_a$	13.2 (4.7)$_a$	0.85
Likelihood	8.7 (2.8)	8.7 (2.7)$_a$	8.7 (2.8)$_a$	0.81
STAIC trait anxiety	31.4 (7.0)	29.3 (6.2)$_a$	33.2 (7.2)$_b$	0.88
LOI–C	27.1 (10.3)	25.4 (9.9)$_a$	28.5 (10.5)$_b$	0.86
SCAS				
Total score	17.4 (13.2)	13.0 (9.8)$_a$	21.1 (14.6)$_b$	0.93
Panic and agoraphobia	2.6 (3.3)	1.7 (2.3)$_a$	3.3 (3.8)$_b$	0.83
Generalised anxiety	4.3 (2.9)	3.4 (2.4)$_a$	5.1 (3.0)$_b$	0.80
Separation anxiety	1.9 (2.2)	1.4 (1.6)$_a$	2.4 (2.4)$_b$	0.74
Social phobia	3.7 (2.8)	3.0 (2.3)$_a$	4.3 (2.9)$_b$	0.74
Obsessive–compulsive disorder	2.6 (2.8)	2.3 (2.4)$_a$	2.8 (3.1)$_a$	0.79
Physical-injury fears	2.3 (2.2)	1.3 (1.5)$_a$	3.1 (2.5)$_b$	0.58
CDI	6.0 (7.2)	4.9 (6.2)$_a$	6.9 (7.8)$_b$	0.92

[a] Means in the same row that do not share the same subscripts differ at $P<0.05/13$. STAIC=State–Trait Anxiety Inventory for Children, LOI–C=Leyton Obsessional Inventory for Children, SCAS=Spence Children's Anxiety Scale, CDI=Children's Depression Inventory.

trait anxiety, obsessive–compulsive symptoms (as indexed by the LOIC), most anxiety disorders symptoms, and depression than boys (see Table 2).

3.3. Correlations between TAF scales and trait anxiety

There were positive but moderate correlations between TAF and trait anxiety. As can be seen in Table 3, the correlations between the Total, Morality, and Likelihood scores of the TAFQ–A and trait anxiety were 0.31, 0.20, and 0.36, respectively (all Ps<0.001).

3.4. Correlations between TAF and symptoms of OCD, anxiety disorders, and depression

Correlations (corrected for gender) were computed between TAF and trait anxiety, on the one hand, and symptoms of OCD, anxiety disorders, and depression, on the other hand. The results are shown in Table 3. As can be seen, moderate but significant correlations emerged between TAF and most of the other measures. Thus, TAF was not only connected to symptoms of OCD (as measured by LOI–C and SCAS) but also to symptoms of other anxiety disorders and depression. Furthermore, the TAFQ–A Likelihood scale was found to be more convincingly associated to symptoms of OCD, anxiety disorders, and depression than the TAFQ–A Morality scale (see also Shafran et al., 1996). Finally, it should be noted that trait anxiety was substantially related to symptoms of OCD, anxiety disorders, and depression (see the right column of Table 3).

3.5. Correlations between TAF and symptoms of OCD, anxiety disorders, and depression while controlling for levels of trait anxiety

Partial correlations between TAFQ–A scales and measures of OCD, anxiety disorders, and depression while controlling for levels of trait anxiety are displayed in Table 4. As can be seen,

Table 3
Correlations (corrected for gender) between thought–action fusion and STAIC trait anxiety, on the one hand, and measures of obsessions and compulsions (LOI–C), anxiety disorders symptoms (SCAS), and depression (CDI)[a]

	Thought-action fusion			STAIC
	Total	Morality	Likelihood	
STAIC trait anxiety	0.31**	0.20**	0.36**	
LOI–C	0.34**	0.24**	0.36**	0.68**
SCAS				
Total score	0.32**	0.22**	0.35**	0.78**
Panic and agoraphobia	0.27**	0.19**	0.28**	0.64**
Generalised anxiety	0.31**	0.22**	0.33**	0.77**
Separation anxiety	0.24**	0.17**	0.24**	0.61**
Social phobia	0.27**	0.19**	0.29**	0.70**
Obsessive–compulsive disorder	0.30**	0.20**	0.34**	0.57**
Physical-injury fears	0.14*	0.09	0.21**	0.44**
CDI	0.33**	0.19**	0.42**	0.67**

[a] n=427, *$P<0.05$, **$P<0.05/39$. STAIC=State–Trait Anxiety Inventory for Children, LOI–C=Leyton Obsessional Inventory for Children, SCAS=Spence Children's Anxiety Scale, CDI=Children's Depression Inventory.

Table 4
Partial correlations (corrected for gender) between thought–action fusion and measures of obsessions and compulsions (LOI–C), anxiety disorders symptoms (SCAS), and depression (CDI), while holding STAIC trait anxiety constant[a]

	Thought-action fusion		
	Total	Morality	Likelihood
LOI–C	0.18**	0.14*	0.17**
SCAS			
Total score	0.13*	0.10*	0.13*
Panic and agoraphobia	0.09	0.08	0.07
Generalised anxiety	0.11*	0.09	0.09
Separation anxiety	0.06	0.06	0.03
Social phobia	0.07	0.06	0.06
Obsessive–compulsive disorder	0.15**	0.10*	0.17**
Physical-injury fears	0.03	0.00	0.06
CDI	0.16**	0.07	0.26**

[a] n=427, *$P<0.05$, **$P<0.05/30$. STAIC=State–Trait Anxiety Inventory for Children, LOI–C=Leyton Obsessional Inventory for Children, SCAS=Spence Children's Anxiety Scale, CDI=Children's Depression Inventory.

the vast majority of correlations between TAF and anxiety disorders symptoms disappeared when the influence of trait anxiety was cancelled out. Interestingly, however, TAF was still significantly connected with symptoms of OCD (as measured by LOI–C and SCAS) and, albeit to a lesser extent, symptoms of generalised anxiety (SCAS). Furthermore, TAF, in particular the TAFQ–A Likelihood scale, remained significantly associated with symptoms of depression.

4. Discussion

The present study examined TAF in a large sample of normal Dutch adolescents (n=427). The main results can be catalogued as follows. First of all, the psychometric properties of our newly devised TAF scale for adolescents, i.e., the TAFQ–A, were satisfactory. The scale was found to have a clear-cut two factor structure with Morality items loading on the first and Likelihood items loading on the second factor. Furthermore, the reliability (internal consistency) coefficients of the TAFQ–A scales were all good (i.e., >0.80). Second, TAF was not only associated with symptoms of OCD, but also with symptoms of other anxiety disorders and depression. Third, when controlling for levels of trait anxiety, most connections between TAF and anxiety disorders symptoms disappeared. Only symptoms of OCD, generalised anxiety, and depression remained significantly related to TAF, although correlations were small.

At first sight, the current data seem to suggest that TAF is not specifically linked to OCD but connected to a broad range of anxiety disorders symptoms. However, further correlational analysis in which we controlled for levels of trait anxiety, showed that it seems to be the case that TAF is more relevant for OCD than for any other anxiety disorder. Putting it in Rassin et al.'s (2000b, p.10) words: "[the] position [of TAF] seems to be similar to that of attentional bias, which is also a phenomenon that occurs in a wide range of anxiety disorders, though its ramifications might be greater in some conditions than in other".

The only other SCAS subscale that was still significantly related to TAF when controlling for levels of trait anxiety, was generalised anxiety. It is plausible to assume that this relationship was caused by the fact that OCD and generalised anxiety disorder appear to share common features and frequently are comorbid conditions (Brown, Dowdall, Cote & Barlow, 1994; see also [1]). In support of this, when controlling for OCD, the connection between TAF and generalised anxiety no longer attained significance [partial *r*s(427)=0.07 when controlling for LOI–C and 0.06 when controlling for SCAS obsessive–compulsive disorder]. In contrast, correlations between TAF and OCD held up when generalised anxiety was partialled out [partial *r*s were 0.16, $P<0.005$ between TAF and LOI–C and 0.12, $P<0.01$ between TAF and SCAS obsessive–compulsive disorder].

Factor analysis of our adolescent measure of TAF (i.e., the TAFQ–A) yielded a clear-cut solution with two factors of TAF, viz. TAF–Morality and TAF–Likelihood. No evidence was obtained for the three-factor structure that has been reported for the TAF scale for adults in which TAF–Likelihood splits into Likelihood Self and Likelihood Others (see e.g., Shafran et al., 1996). There are two plausible explanations for this unexpected finding. First of all, it may well be the case that TAF in adolescents has a simpler factor structure than TAF in adults. Second, in the original TAF scale, the 'Likelihood Others' factor is tapped by items that refer to subjects' friends and relatives. All of the TAFQ–A items that were supposed to tap this factor pertain to adolescents' parents. It is possible that adolescents consider the likelihood of bad happening to their parents as equally disturbing as bad happening to themselves.

In agreement with Shafran et al. (1996), the present data showed that TAFQ–A Likelihood is associated with depression. MacLeod and Byrne (1996) found that depressed individuals have the tendency to anticipate more negative experiences in the future. From this perspective, it seems plausible that depression promotes subjects' belief that merely thinking about a negative event increases the likelihood that this situation actually will occur. On the other hand, it is also conceivable that individuals with a strong likelihood bias become more easily depressed, because they really believe that bad things are going to occur in the future.

Three limitations of the current study should be acknowledged. First, the study relied on a sample of normal adolescents displaying relatively low levels of OCD symptoms. Second, the LOI–C and the SCAS obsessive–compulsive disorder scale were used as the critical measures of OCD symptoms in this sample. The validity of these scales is rather poor (LOI–C) or unknown (SCAS). Yet, it should be noted that, currently, there are no alternative self-report instruments for assessing OCD symptoms in children and adolescents (see Stallings & March, 1995; March & Mulle, 1998). Finally, the current study was correlational in nature and hence does not provide evidence for any kind of causal association between TAF and psychopathology. Nevertheless, the data are supportive of the notion that TAF is involved in a broad range of anxiety disorders and in particular OCD.

Acknowledgements

Teachers, staff, and children of the Stella Maris College in Meerssen, The Netherlands are thanked for their participation in the present study.

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